

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of all claims in the application.

LISTING OF THE CLAIMS

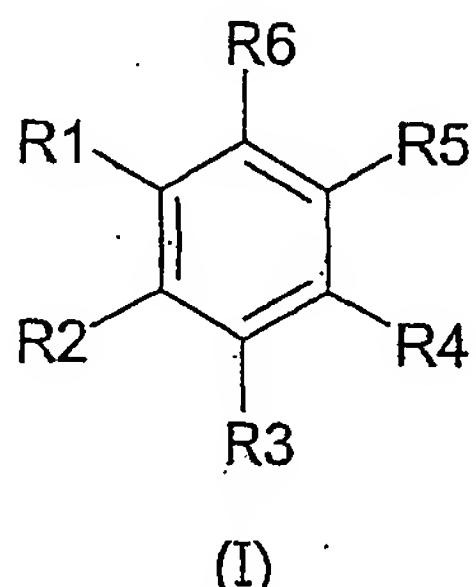
Claims 1-32. (Canceled)

33. (New) A method for producing a bright copper coating on metal or plastic surfaces of an item to enhance the appearance of the item, the method comprising:

preparing an aqueous acidic solution containing:

- copper ions,
- at least one oxygen-containing, high molecular additive,
- an acid, and
- at least one water soluble sulfur compound,
- characterized in that the solution additionally contains at least one

aromatic halogen derivative having the general formula:



wherein R1, R2, R3, R4, R5 and R6 are each independently radicals selected from the group consisting of hydrogen, aldehyde, acetyl, hydroxy, hydroxyalkyl having

1- 4 carbon atoms, alkyl having 1-4 carbon atoms and halogen, with the proviso that the number of radicals R1, R2, R3, R4, R5 and R6 which are halogen ranges from 1-5 and that the number of radicals R1, R2, R3, R4, R5 and R6 which are hydrogens ranges from 1-5,
wherein prior to the addition of said aromatic halogen derivative to said aqueous acidic solution, said aromatic halogen derivative is dissolved in an alcohol;
bringing an item to be coated into contact with the solution;
applying a cathodic current density for a duration of time to plate the copper onto the surface of said item.

34. (New) The method of claim 33, including alkalinizing said aqueous acidic solution to promote the dissolving of the said aromatic halogen derivative in said aqueous acidic solution.

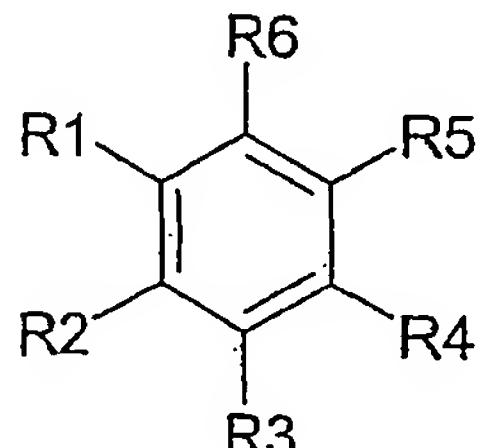
35. (New) The method of claim 34, wherein alkalinizing said aqueous acidic solution includes forming alkali halogen phenolates by adding water soluble salts to said solution.

36. (New) The method of claim 33, comprising improving the water solubility of said aromatic halogen derivatives by forming a bisulfite adduct with the CO group of the aldehyde radical.

37. (New) The method of claim 36, wherein said improving the water solubility of said aromatic halogen derivative comprises partial formation of α -hydroxysulfonates.

38. (New) The method of claim 33, wherein the concentration of the at least one aromatic halogen derivative having the formula (I) ranges from 0.005 to 0.5 mg/l.
39. (New) The method of claim 33, wherein said copper ions are present in a copper containing compound that is present in said solution in an amount from 160,000 to 400,000 times the amount of said at least one aromatic halogen derivative.
40. (New) The method of claim 33, including heating the solution to a temperature of from about 15° to 50° C.
41. (New) The method of claim 33, wherein the cathodic current density applied from about 0.5 to 12 A/dm².
42. (New) The method of claim 33, wherein the at least one aromatic halogen derivative is present in an amount that is from about 1:2000000.
43. (New) A method for producing a bright copper coating on metal or plastic surfaces of an item to enhance the appearance of the item, the method comprising:
preparing an aqueous acidic solution containing:
 - copper ions,
 - at least one oxygen-containing, high molecular additive,
 - an acid, and
 - at least one water soluble sulfur compound,

- characterized in that the solution additionally contains at least one aromatic halogen derivative having the general formula:



wherein R1, R2, R3, R4, R5 and R6 are each independently radicals selected from the group consisting of hydrogen, aldehyde, acetyl, hydroxy, hydroxyalkyl having 1- 4 carbon atoms, alkyl having 1-4 carbon atoms and halogen, with the proviso that the number of radicals R1, R2, R3, R4, R5 and R6 which are halogen ranges from 1-5 and that the number of radicals R1, R2, R3, R4, R5 and R6 which are hydrogens ranges from 1-5,

wherein prior to the addition of said aromatic halogen derivative to said aqueous acidic solution, said aromatic halogen derivative is dissolved in an alcohol;

bringing an item to be coated into contact with the solution;

applying a cathodic current density for a duration of time to plate the copper onto the surface of said item;

wherein the concentration of the at least one aromatic halogen derivative having the formula (I) is less than 1.0 mg/L and is not any one of 2-chloro-4-hydroxybenzaldehyde, 4- chlororesorcinol and 3-chlorophenol.

44. (New) The method of claim 43, wherein the concentration of the at least one aromatic halogen derivative having the formula (I) ranges from 0.005 to 0.9 mg/l.